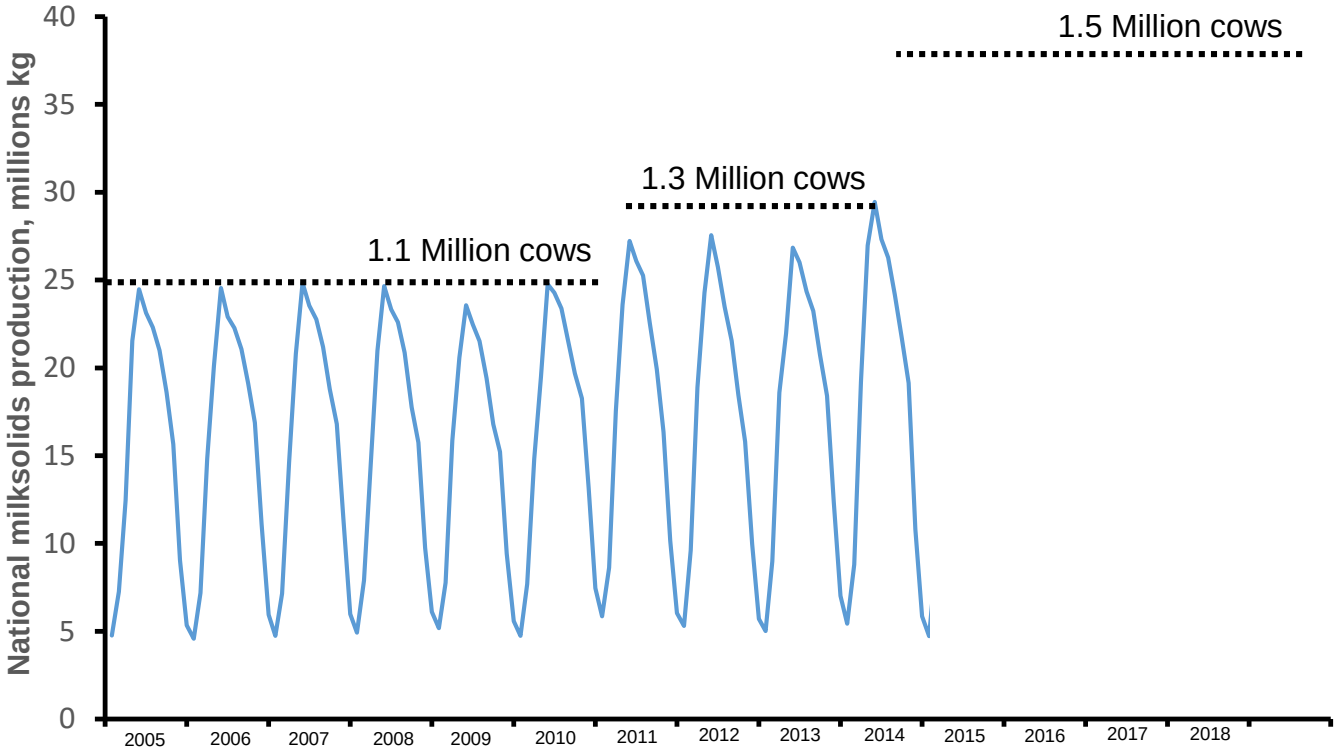
Ministry for Primary Industries
Manatū Ahu Matua

# The cost-benefit of marginal milk

**John Roche,**
**Chief Departmental Science Adviser, MPI**


Grass may have some nutritional value but frankly it bores the shit out of me!
GUS

# Change in Irish milk production

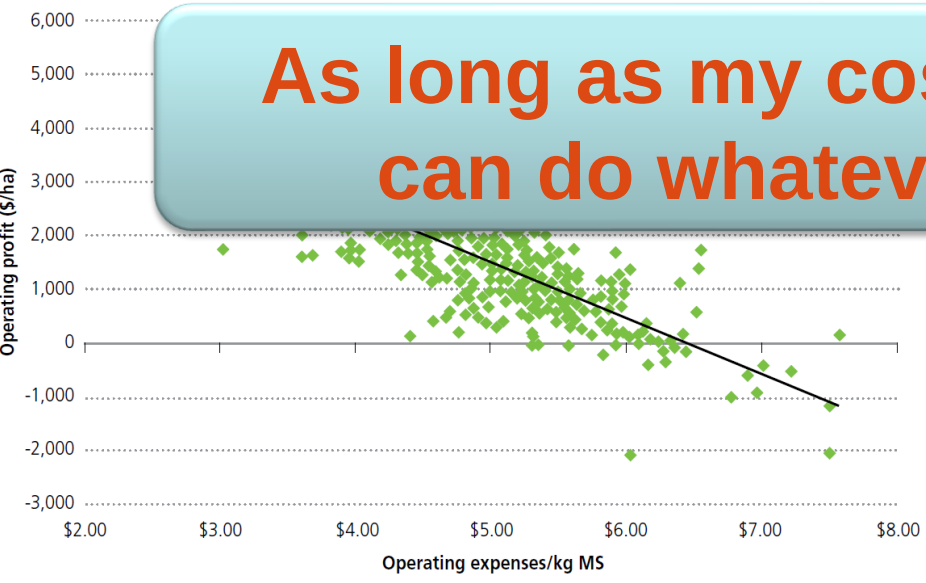


# Farmer’s have been misled!


is most factor

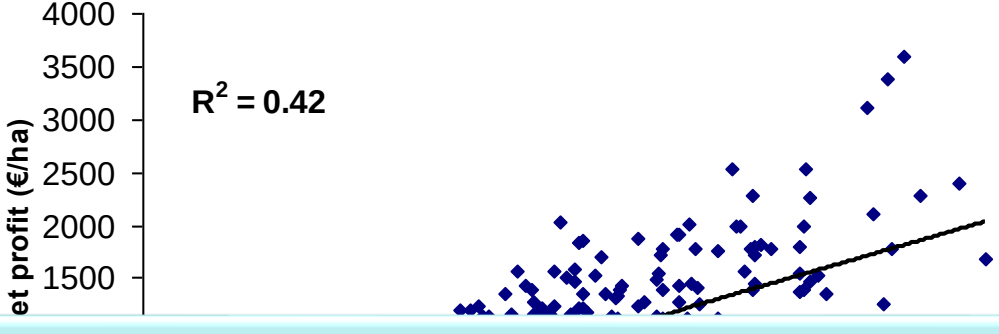
most factor

**As long as my costs are low, I can do whatever I want!**




increases with declining operating costs!

Operating profit increases with increased pastu utilis




**As long as I'm utilising all my pasture, I do can whatever I want!**

And anyway different farmers need to make own decisions on what they classify as marginal milk because on my books profit no matter how big or how small is still profit 👍

23/11/18, 11:11 AM

**1** Like




And

anyway different farmers need to make own decisions on what they classify as marginal milk because on my books profit no matter how big or how small is still profit 👍

23/11/18, 11:11 AM

**1** Like




# What is marginal milk?

*It is the additional milk produced when you make a change to your farming system*

| | Production | Total cost | Average cost | Marginal cost |
|---|---|---|---|---|
| |  |  |  | |
| Base milk | 45,000 kg MS | €150,000 | €3.33/kg MS | |

| | Production | Total cost | Average cost | Marginal cost |
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| Base milk |  45,000 kg MS |  €150,000 |  €3.33/kg MS | |
| Scenario 1 |  52,650 kg MS |  €192,000 |  €3.65/kg MS |  €5.49/kg MS |

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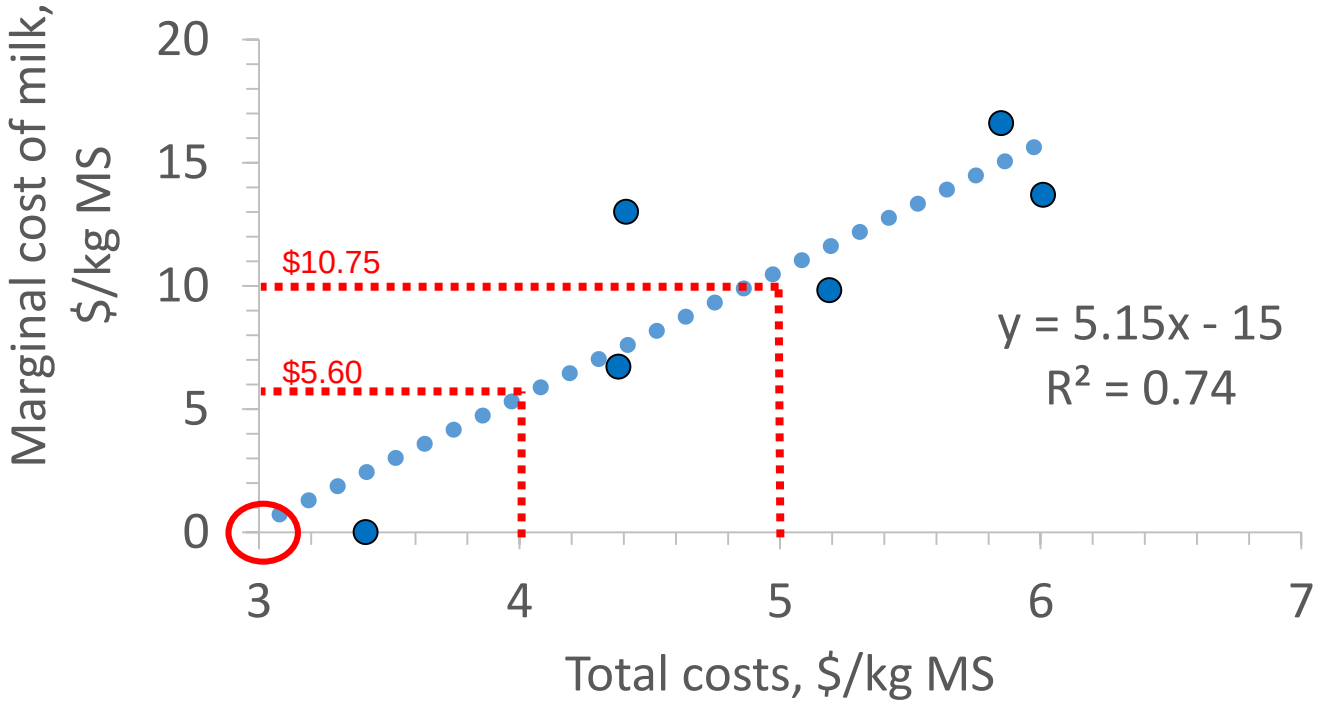
# Average cost hides marginal losses

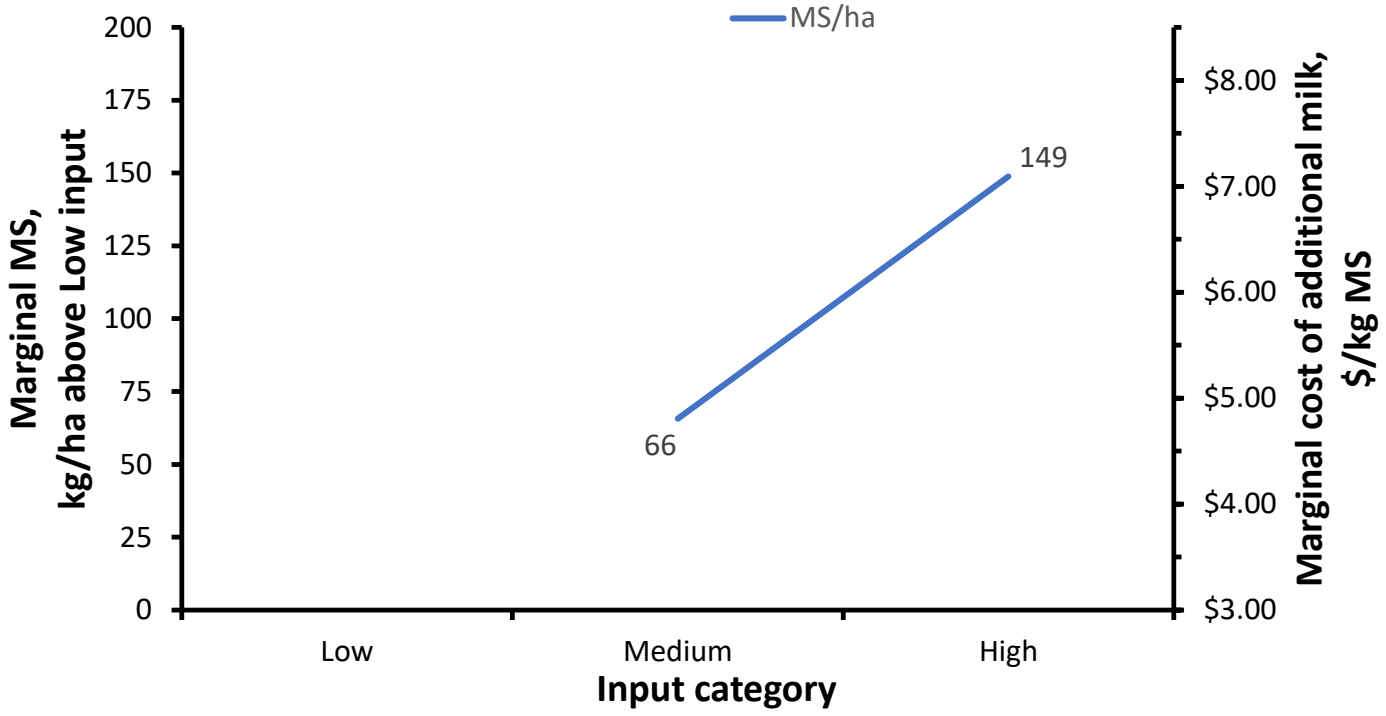


JAE Journal of Agricultural Economics

*Journal of Agricultural Economics*
doi: 10.1111/1477-9552.12261

# Higher Intensity, Higher Profit? Empirical Evidence from Dairy Farming in New Zealand

Wanglin Ma, Alan Renwick and Kathryn Bicknell[1]




Average of 3 years – 2011, 2012, 2013

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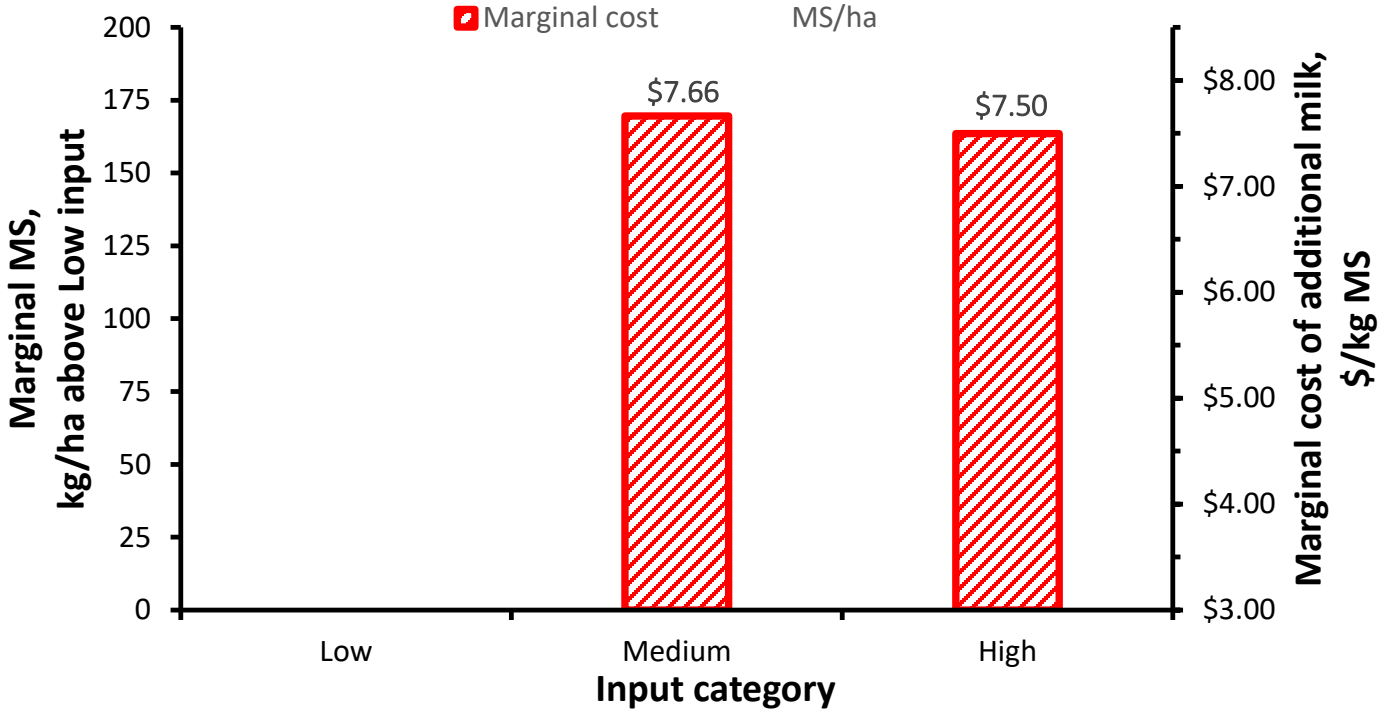
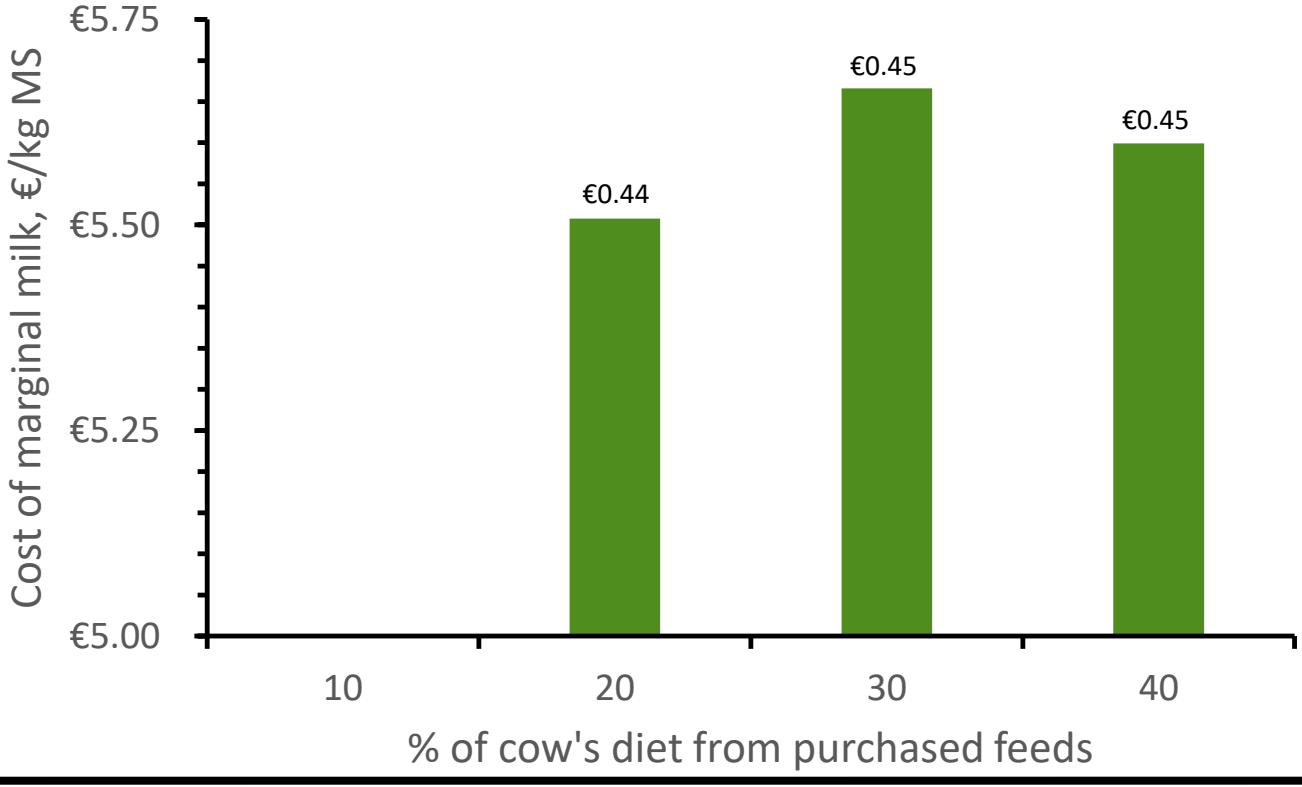



Average of 3 years – 2011, 2012, 2013

J. Dairy Sci. 98:3526–3540
http://dx.doi.org/10.3168/jds.2014-8516


# Factors associated with the financial performance of spring-calving, pasture-based dairy farms

G. Ramsbottom,* B. Horan,† D. P. Berry,† and J. R. Roche‡[1]
*Teagasc, Oak Park, Carlow, Ireland
†Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Co. Cork, Ireland
‡DairyNZ, Private Bag 3221, Hamilton 3210, New Zealand



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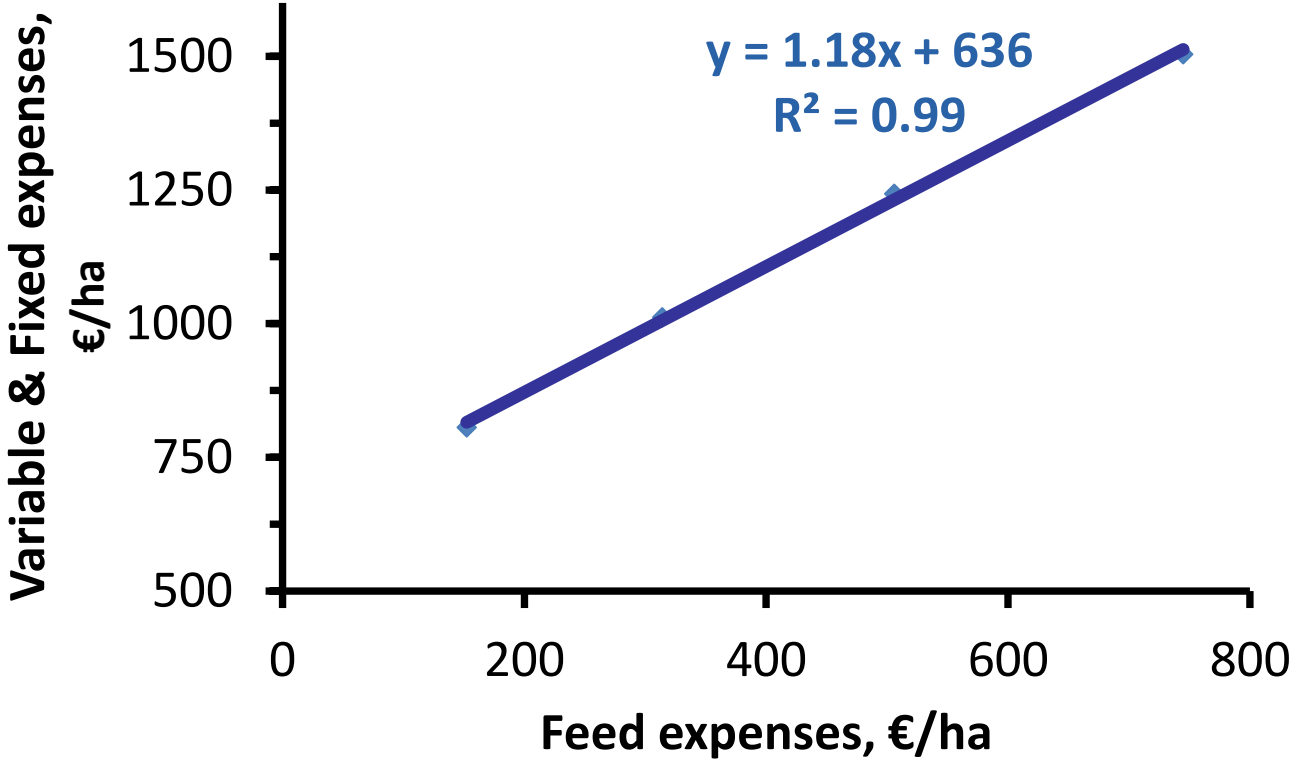
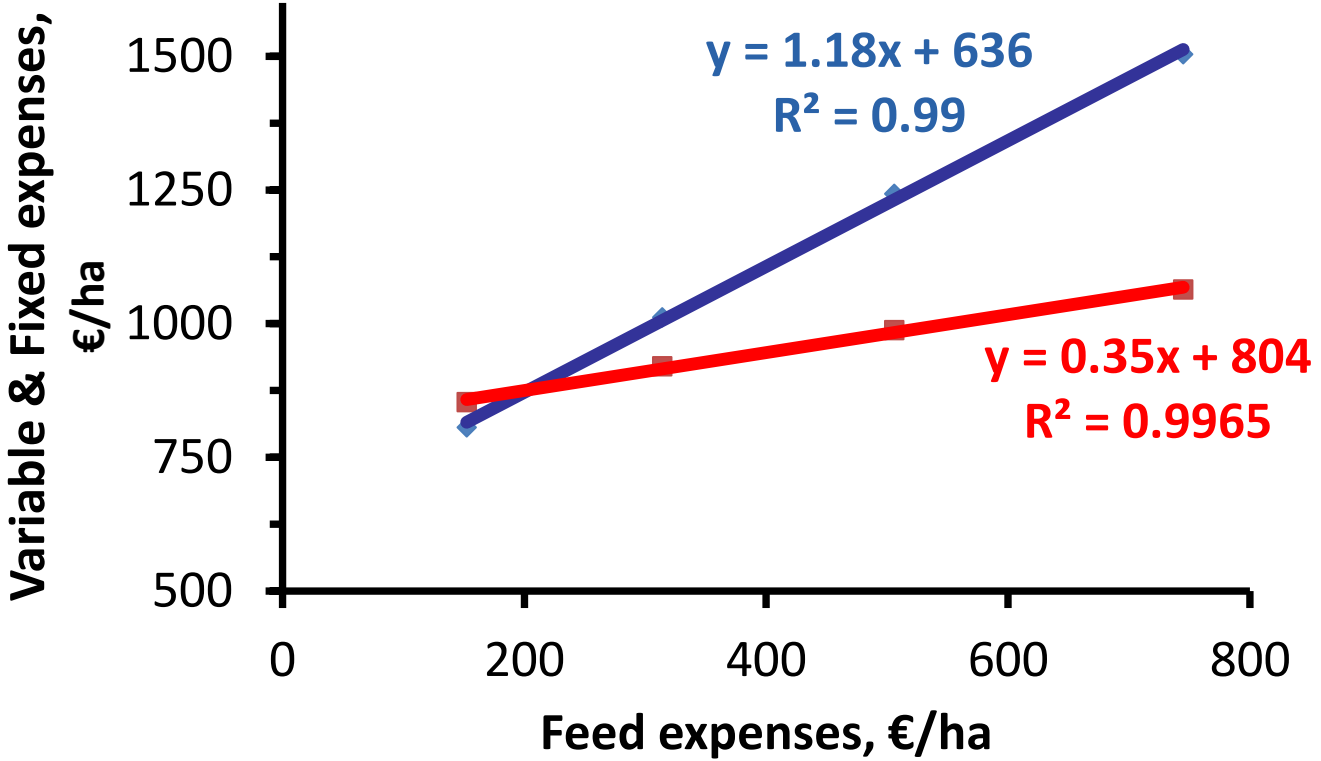
# costs of feeding




***Source: Ramsbottom et al. 2015 Journal of Dairy Science.***

# The hidden costs of feeding




*Source: Ramsbottom et al. 2015 Journal of Dairy Science.*

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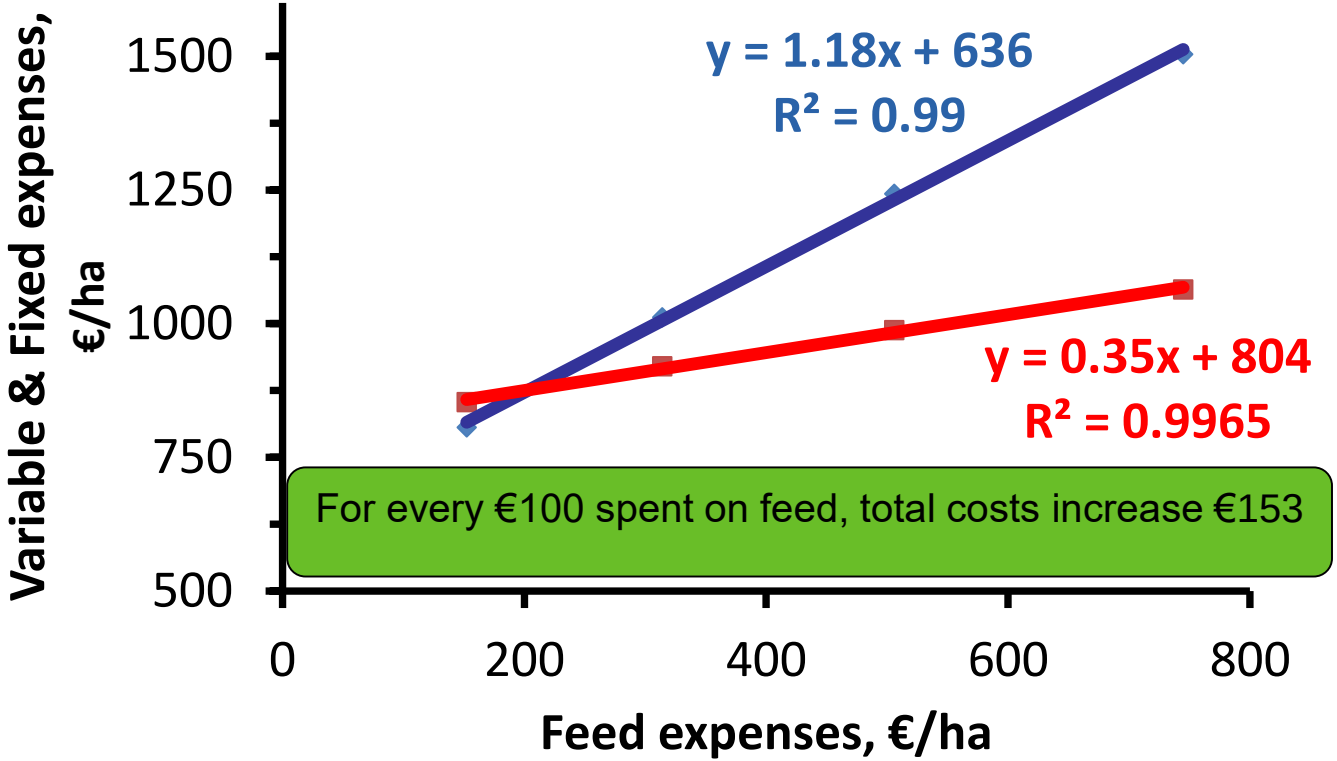


*Source: Ramsbottom et al. 2015 Journal of Dairy Science.*

# Hidden costs?

| | Year | Expenses(€/£/$) | |
|---|---|---|---|
| | | Feed | Total |
| Ireland | 4 | 100 | 153 |
| UK | 1 | 100 | 162 |
| Waikato | 14 | 100 | 168 |
| Canterbury | 14 | 100 | 153 |
| Northland | 14 | 100 | 183 |

J. Dairy Sci. 100:6602–6619
https://doi.org/10.3168/jds.2016-12497


# Production and economic responses to intensification of pasture-based dairy production systems

K. A. Macdonald, J. W. Penno,[1] J. A. S. Lancaster, A. M. Bryant, J. M. Kidd,[2] and J. R. Roche[3]
DairyNZ, Private Bag 3221, Hamilton, New Zealand 3240

| Stocking rate | 3.35 cows/ha | 4.41 cows/ha | 4.41 cows/ha | 4.41 cows/ha |
|---|---|---|---|---|
| Supplements, t DM/cow | - | - | 1.3 | 1.1 |
| CSR, kg Lwt/t feed DM | 86 | 113 | 82 | 84 |
| MS/ha, kg | 1,199 | 1,175 | 1,745 | 1,584 |
| MS/cow, kg | 357 | 267 | 396 | 359 |
| | | | | |
| Op profit/ha | 2,544 | 1,845 | 1,390 | 1,812 |

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| Marginal milk, $/kg MS | | * | 6.33 | 5.54 |

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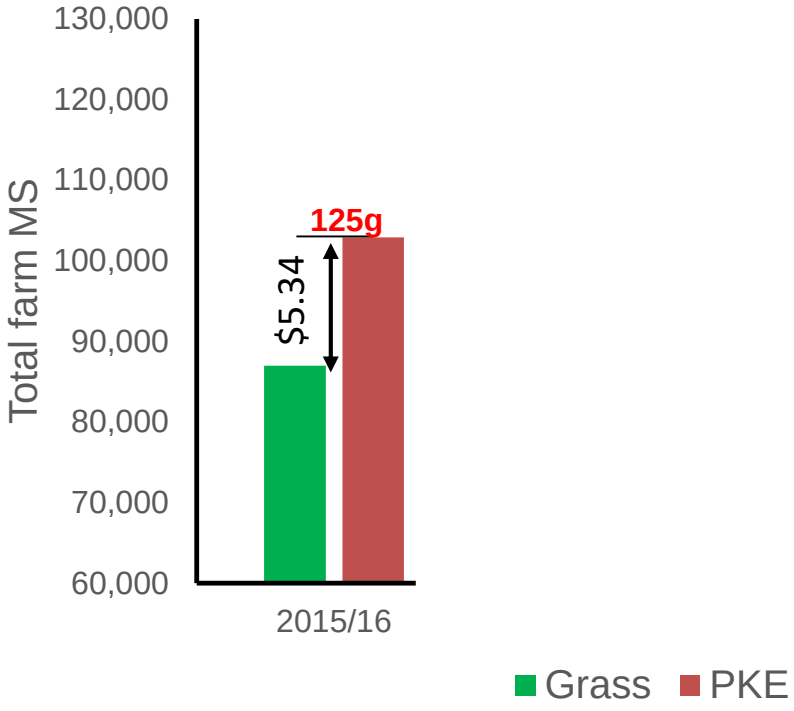
| Marginal milk, $/kg MS | * | | 7.97 | 7.81 |

# Marginal cost of milk at NARF for 100 ha farm



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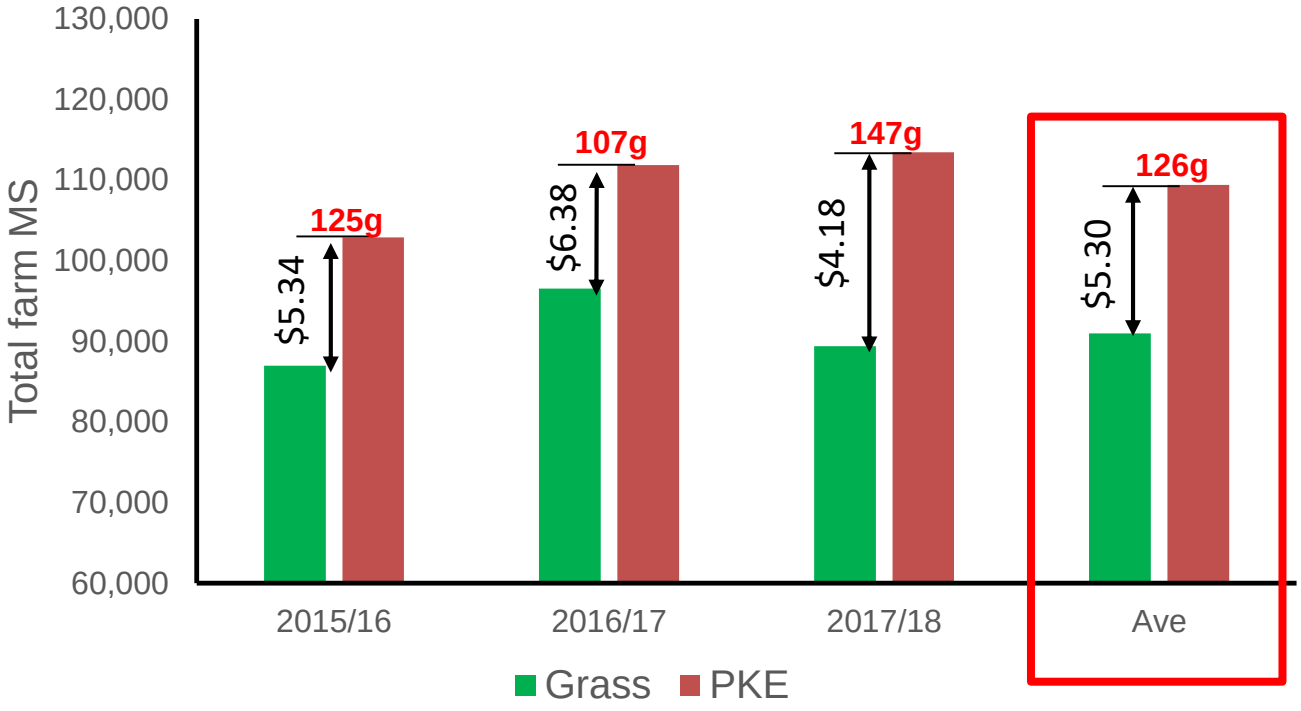

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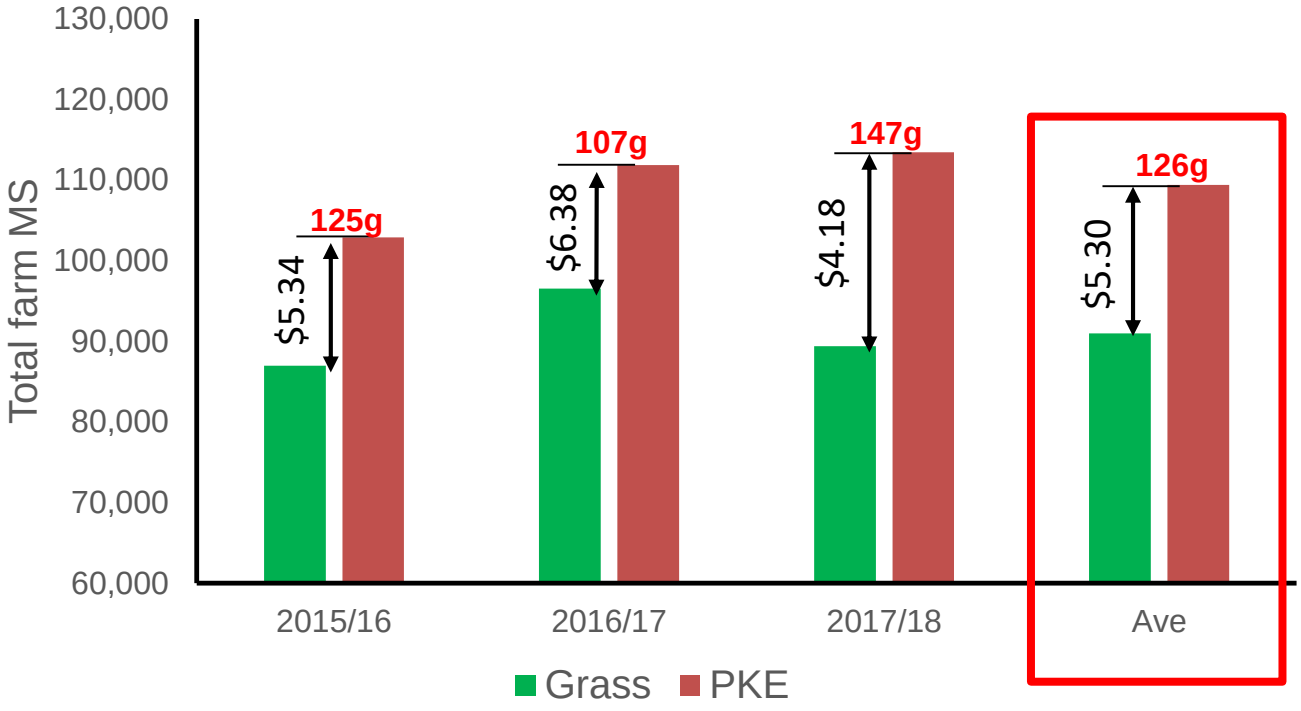
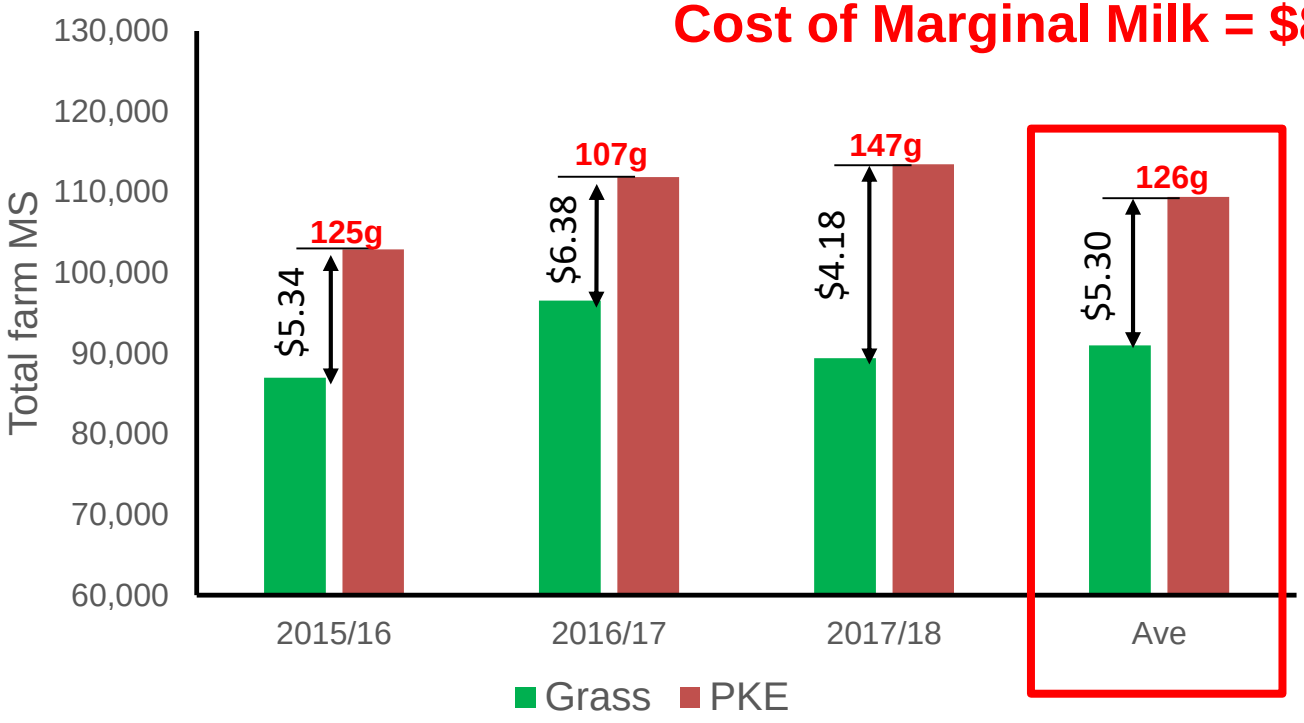


# Marginal cost of milk at NARF for 100 ha farm

**If MR = 75 g MS/kg DM**
**Cost of Marginal Milk = $8.80**



# The cost of marginal milk from supplementary feeds?

| | Years | Country | €/kg MS | c/L |
|---|---|---|---|---|
| Ramsbottom et al. | 4 | Ireland | 5.60 | 0.45 |
| Ma et al. | 3 | NZ | 4.93 | 0.39 |
| Macdonald et al. | 3 | NZ-research | 5.14 | 0.41 |
| Roche et al. | 3 | NZ-research | 3.64 | 0.29 |
| Roche et al. (adj) | | NZ-research | 5.72 | 0.46 |

* All converted to Euro

# Another cost!

Two environmental concerns:

- Nitrate leaching
- Carbon footprint

# NITROGEN LEACHING AS AFFECTED BY DAIRY INTENSIFICATION AND MITIGATION PRACTICES IN THE RESOURCE EFFICIENT DAIRYING (RED) TRIAL

**Stewart Ledgard[1], Mike Sprosen[1], Amanda Judge[1], Stuart Lindsey[1], Rodger Jensen[2], Dave Clark[2] and Jiafa Luo[1]**

[1] *AgResearch Ruakura Research Centre, Hamilton, New Zealand*
[2] *Dexcel, Hamilton, New Zealand*

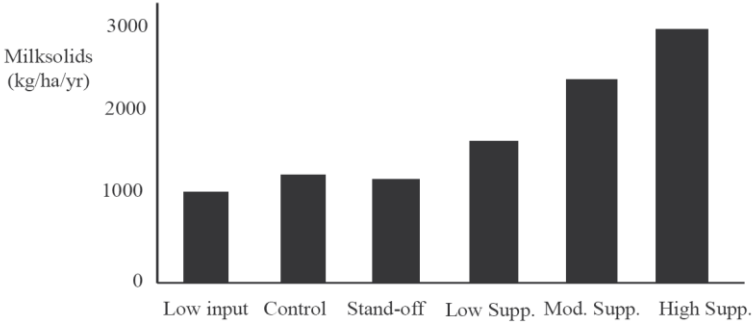



**Figure 1.** Average annual milksolids production (2002-2005).

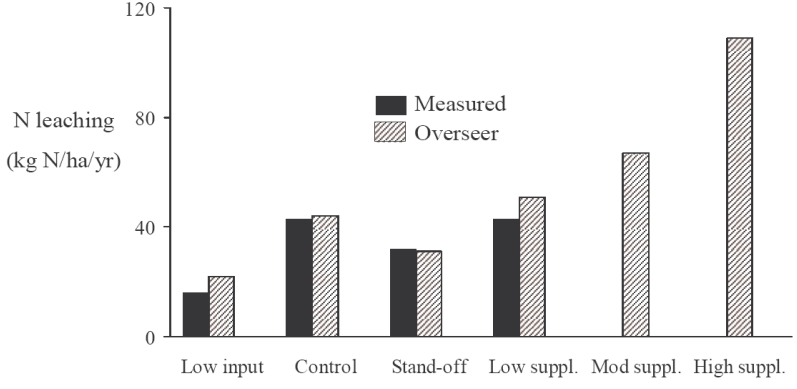



**Figure 2.** Average annual N leaching (measured and predicted using overseer model) from dairy farmlets.

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| Cost of marginal milk, $/kg MS | - | | 7.97 | 8.81 |
| Carbon Footprint, t $CO_2$eq (100 ha equivalent farm) | 1,535 | 1,667 +9% | 2,246 +46% | 1,982 +29% |

# One final cost!



In life, it's not where you go; it's who goes with you!

# Summary


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# Summary

On average, marginal milk from supplements:

- more expensive than milk price;
- increases C-footprint;
- likely increasing N-footprint (or capital expenditure);
- reduces Competitive and Comparative Advantage.


Thank you

Contact me:

**john.roche@downtoearthadvice.com**

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**@down2earth_john**

"***Rest satisfied with doing well, and leave others to talk of you as they please***" — Pythagoras

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